

***Abstract of the Disclosure***

**[0051]** An improved optical fiber design has been found to exhibit a relatively low attenuation at the wavelength of 1385 nm (the “water peak”), allowing for Raman amplification to be efficient and effective at wavelengths in the S-band range of 1460 to 1530 nm. An ultra-dry process is used to mate an inner core rod (core plus surrounding trench) with a cladding tube (ring region plus cladding layers) and provide a water peak loss on the order of 0.325 dB/km. The low water peak is combined with appropriate dispersion values and zero dispersion wavelength to form a fiber that supports transmission and Raman amplification in the S-, C- and L-bands of interest for optical transmission systems.